

**NORTH AMERICA
INTERNATIONAL PATENT OFFICE**

**RECEIVED
CENTRAL FAX CENTER**

FEB 25 2004

**P.O. BOX 506, Merrifield, VA 22116, U.S.A.
TEL:+886-2-8923-7350 FAX:+886-2-2929-5950 e-mail:winstonhsu@naipo.com.tw**

OFFICIAL

**FAX TO: RUDE, TIMOTHY L Tel: (571) 272-2301
ART UNIT: 2871 Fax: (703) 872-9318**

FROM: Winston Hsu, PATENT AGENT, REG. NO. : 41,526

SERIAL NO.: 09/683,482

ATTORNEY DOCKET NO.: ADTP0028USA

SUBJECT: INFORMATION DISCLOSURE STATEMENT

TOTAL PAGES: 12 PAGES (INCLUDING COVER PAGE)

Winston Hsu 2004/02/25

ADTP0028USA5_D1_1

PTO/SB/97 (08-00)

Approved for use through 10/31/2002. OMB 0851-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.**Certificate of Transmission under 37 CFR 1.8**

I hereby certify that this correspondence is being facsimile transmitted to the
United States Patent and Trademark Office

on 02/25/2004

Date

Sandy Huang
SignatureSandy Huang

Typed or printed name of person signing Certificate

Note: Each paper must have its own certificate of transmission, or this certificate must identify
each submitted paper.

APPLICATION NUMBER: 09/683,482**PAPERS INCLUDED:**

(1) Transmittal Form	1 PAGE
(2) Fee Transmittal	1 PAGE
(3) Information Disclosure Statement	8 PAGES

Burden Hour Statement: This form is estimated to take 0.03 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

PTO/SB/21 (08-03)

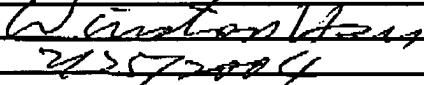
Approved for use through 08/30/2003. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>		Application Number	09/683,482	
		Filing Date	01/07/2002	
		First Named Inventor	Jia-Fam Wong	
		Art Unit	2871	
		Examiner Name	RUDE, TIMOTHY L	
Total Number of Pages in This Submission		10	Attorney Docket Number	ADTP0028USA

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or individual name	Winston Hsu, Reg. No.: 41,526	
Signature		
Date	21/07/2004	

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name		
Signature	Date	

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/17 (10-03)

Approved for use through 07/31/2008. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

 Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 180.00)

Complete if Known

Application Number	09/683,482
Filing Date	01/07/2002
First Named Inventor	Jia-Fam Wang
Examiner Name	RUDE, TIMOTHY L
Art Unit	2871
Attorney Docket No.	ADTP0028USA

METHOD OF PAYMENT (check all that apply)

 Check Credit card Money Order Other None
 Deposit Account:

Deposit Account Number 50-0801
Deposit Account Name North America International Patent Office

The Director is authorized to: (check all that apply)

 Charge fee(s) indicated below Credit any overpayments
 Charge any additional fee(s) or any underpayment of fee(s)
 Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity	Small Entity	Fee Code (\$)	Fee	Fee Code (\$)	Fee	Fee Description	Fee Paid
1001	770	2001	385			Utility filing fee	
1002	340	2002	170			Design filing fee	
1003	530	2003	265			Plant filing fee	
1004	770	2004	385			Reissue filing fee	
1005	160	2005	80			Provisional filing fee	
SUBTOTAL (1)						(\$ 0.00)	

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Independent Claims	Multiple Dependent	Extra Claims below	Fee from below	Fee Paid
			-20** =		
			- 3** =		

Large Entity	Small Entity	Fee Code (\$)	Fee	Fee Code (\$)	Fee	Fee Description	Fee Paid
1202	18	2202	9			Claims in excess of 20	
1201	86	2201	43			Independent claims in excess of 3	
1203	280	2203	145			Multiple dependent claim, if not paid	
1204	86	2204	43			** Reissue independent claims over original patent	
1205	18	2205	9			** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)						(\$ 0.00)	

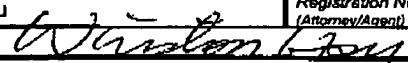
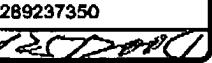
*or number previously paid, if greater; For Reissues, see above

3. ADDITIONAL FEES

Large Entity	Small Entity	Fee Code (\$)	Fee	Fee Code (\$)	Fee	Fee Description	Fee Paid
1051	130	2051	65			Surcharge - late filing fee or oath	
1052	50	2052	25			Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130			Non-English specification	
1812	2,520	1812	2,520			For filing a request for ex parte reexamination	
1804	920*	1804	920*			Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*			Requesting publication of SIR after Examiner action	
1251	110	2251	55			Extension for reply within first month	
1252	420	2252	210			Extension for reply within second month	
1253	950	2253	475			Extension for reply within third month	
1254	1,480	2254	740			Extension for reply within fourth month	
1255	2,010	2255	1,005			Extension for reply within fifth month	
1401	330	2401	165			Notice of Appeal	
1402	330	2402	165			Filing a brief in support of an appeal	
1403	290	2403	145			Request for oral hearing	
1451	1,510	1451	1,510			Petition to institute a public use proceeding	
1452	110	2452	55			Petition to revive - unavoidable	
1453	1,330	2453	665			Petition to revive - unintentional	
1501	1,330	2501	665			Utility issue fee (or reissue)	
1502	480	2502	240			Design issue fee	
1503	640	2503	320			Plant issue fee	
1460	130	1460	130			Petitions to the Commissioner	
1807	50	1807	50			Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180			Submission of Information Disclosure Stmt	180.00
8021	40	8021	40			Recording each patent assignment per property (times number of properties)	
1809	770	2809	385			Filing a submission after final rejection (37 CFR 1.129(e))	
1810	770	2810	385			For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385			Request for Continued Examination (RCE)	
1802	900	1802	900			Request for expedited examination of a design application	
Other fee (specify)							
Reduced by Basic Filing Fee Paid							
SUBTOTAL (3)						(\$ 180.00)	

*or number previously paid, if greater; For Reissues, see above

SUBTOTAL (3) (\$ 180.00)

SUBMITTED BY		(Complete if applicable)		
Name (Print/Type)	Winston Hsu	Registration No. (Attorney/Agent)	41,526	Telephone 886289237350
Signature		Date		

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Jia-Fam Wong
5 Filing Date: 01/07/2002
Serial No.: 09/683,482
Examiner: RUDE, TIMOTHY L
Art Unit: 2871
Docket No.: ADTP0028USA

Title: LIQUID CYRSTAL DISPLAY WITH A LOW DRIVING VOLTAGE

10 To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

15 Subject: Information disclosure statement Under
37C.F.R. \$1.56 and 37C.F.R. \$1.97(c).

Dear Sir:

20 This is an Information Disclosure Statement in
accordance with the duty to disclose information
material to patentability under 37 C.F.R. \$1.56.
Applicants wish to make of record the documents listed
on the accompanying form PTO/SB/08. It is respectfully
requested that the Examiner initials the cited
25 references on the form and that it be made of record
in the application and that a copy of the initialed
form be sent to Applicants with the next communication
from the Examiner.

30 Since the information disclosure statement is filed
before the mailing date of any of a final action, the
requirement set forth in \$1.97(c) is satisfied. The

prior art patents contained in the information disclosure statement were cited in communications from the Taiwan Intellectual Property Office on 01/07/2004. Applicant sincerely hopes that the examiner can 5 consider the items contained in the information disclosure statement.

According to the requirement set forth in 37C.F.R. §1.98 and M.P.E.P. 609 (8th edition, Aug. 2001), 10 the applicant is submitting copies of the references cited by the Taiwan Intellectual Property Office (US Patent No. 5995186, granted Nov. 30, 1999) and a concise explanation of the relevance in this application hereinafter.

15

US Patent No. 5995186 discloses a parallel field liquid crystal display having straight data and common electrodes inclined at an angle to a gate line. The in-plane switching mode LCD (IPS LCD) comprises a first 20 substrate 27 and a second substrate 26 opposite and parallel to the first substrate 27, an alignment layer 59 disposed on an inner surface of the first substrate 27, a polarizer 63 disposed on an outer surface of the first substrate 27, an alignment layer 62 disposed on 25 an inner surface of the second substrate 26, and an analyzer 64 disposed on an outer surface of the second substrate 26. The IPS LCD further comprises straight and parallel data electrodes 48 and common electrodes 49 disposed on the inner surface of the first substrate 30 27, and a liquid crystal layer 60 injected between the first substrate 27 and the second substrate 26 (refer to Fig.(2) of the cited prior art).

The data electrode 48 is 95° to the gate line 41. The alignment layer 59, the alignment layer 62, and the analyzer is 90° to the gate line 41. The polarizer 63 is 0° to the gate line 41 (refer to Fig. (3) of the cited prior art). When no voltage is applied between the data electrode 48 and the common electrode 49, all of the liquid crystal molecules are aligned parallel to the first substrate 27 and the second substrate 26, and parallel to the principle transmission axis of the analyzer 64. By forming the data electrode 48 and the common electrode 49 slant to the gate line 41, the viewing angle inverted problem is greatly improved such that the viewing angle inverted areas only appear at the corners of the display. When a voltage is applied between the data electrode 48 and the common electrode 49, an electric field 13, which is 5° to the gate line 41, is produced between the data electrode 48 and the common electrode 49. At this time, the liquid crystal molecules 77 adjacent to the first substrate 27 are rotated to the electric field direction; the liquid crystal molecules 78 adjacent to the second substrate 26 are subject to an electric field below the threshold electric field so that the liquid crystal molecules 78 retain in the original direction. In this manner, the liquid crystal molecules are continuously twisted between the first substrate 27 and the second substrate 26. Polarized light having a polarized direction of the polarizer 63 is guided by the liquid crystal molecules to the perpendicular direction, which is parallel with the principle transmittance axis of analyzer 64. As a result, a white state is obtained

(refer to Fig. (2) and Fig. (3) of the cited prior art).

Claim 1 of the present application is repeated here for reference:

5

1. A liquid crystal display (LCD) comprising:
 - a first substrate comprising a first surface;
 - a second substrate comprising a second surface, the second surface being in parallel with and opposite to the first surface of the first substrate, and a pixel area being defined on the second surface;
 - a first common electrode positioned on the first surface of the first substrate;
 - a pixel electrode disposed above the pixel region of the second substrate, the second electrode having a first slit elongated along a first direction;
 - an isolation layer disposed on the surface of the second substrate to cover the pixel electrode;
 - a second common electrode disposed on the isolation layer and within the pixel region, a second slit being defined on the second common electrode and along the first direction, the first and second slits being interlaced; and
 - a plurality of anisotropic liquid crystal molecules with negative dielectric constant positioned between the first common electrode and the second common electrode, the longitudinal axis of the liquid crystal molecules being positioned along a second direction horizontally, and a first angle being formed between the first

direction and the second direction; wherein a biased electric field is formed as a voltage is applied between the first common electrode and the pixel electrode,

5 such that (a) a first horizontal biased electric field is formed in the neighborhood of the second slit, the first horizontal biased electric field is perpendicular to the first direction, and the liquid crystal molecules

10 are rotated to make the longitudinal axis of the liquid crystal molecules in the neighborhood of the second slit being in parallel to the first direction,

15 (b) the longitudinal axis of the liquid crystal molecules in the neighborhood of the first common electrode maintain along the second direction because no horizontal biased electrical field is formed near the first common electrode, and

20 (c) the liquid crystal molecules between the first common electrode and the second slit of the second common electrode gradually rotate from the second direction to the first direction."

25

Compared with US Patent No. 5995186, the present application liquid crystal display is not only an IPS LCD, but is also featured in having an upper common electrode disposed on a lower surface of a top substrate. Therefore, two horizontal biased electric fields and two vertical biased electrical fields are provided by a biased electric field 120 formed between

the upper common electrode 104 and the pixel electrode 208 and a biased electric field 220 formed between the lower common electrode 210 and the pixel electrode 208. Under the circumstances, the rotation of the liquid crystal molecules 40 are accelerated by both the horizontal biased electric field 1201 of the biased electric field 120 and the horizontal biased electric field (not shown) of the biased electric field 220. In addition, the vertical biased electric field 1202 of the biased electric field 120 will maintain the liquid crystal molecules 40 to rotate on a fixed plane. As a result, the driving voltage is lowered, the rotation of the liquid crystal molecules 40 is accelerated, and the wide view angle is obtained.

15

In the cited prior art, not any electrode is disposed on the lower surface of the second substrate 26. Therefore, it is impossible to produce the same number of components of biased electric fields. Furthermore, there is no vertical biased electric field produced between the first substrate 27 and the second substrate 26 to maintain the liquid crystal molecules to rotate on the fixed plane. In summary, the performance of the IPS LCD in the cited prior art is not equivalent to the performance of the present application LCD.

It is clear that the LCD disclosed in the present application has a different structure and different function from the IPS LCD disclosed in the cited prior arts.

Since claim 1 of the present application is substantially different from the prior art patent US Patent No. 5995186, and all other claims are dependent on claim 1, a quick allowance of the present 5 application is sincerely requested.

Sincerely,

10

Winston Hsu

Date: 2/25/2004

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506

15 Merrifield, VA 22116

U.S.A.

e-mail : winstonhsu@naipo.com.tw

(Please contact me by e-mail if you need a telephone communication and I will return your call promptly.)

20

PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<p>Substitute for Form 1449A/PTO</p> <p>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</p> <p><i>(use as many sheets as necessary)</i></p>				<p>Complete If Known</p>	
Sheet	1	of	1	Application Number	09/683,482
				Filing Date	01/07/2002
				First Named Inventor	Jia-Fam Wong
				Art Unit	2871
				Examiner Name	RUDE, TIMOTHY L
				Attorney Docket Number	ADTP0028USA

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

Examiner Signature		Date Considered	
-------------------------------	--	----------------------------	--

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.